ARCHAEOLOGY IN INDIA

PUBLICATIONS DIVISION

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Ratnagiri (Orissa): gateway of a monastery, after excavation.

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"The discoveries of Archaeology have naturally inspired a sense of pride in the past of India. They have also demonstrated the basic unity and composite nature of Indian Culture, in spite of its diversities at different places and times. Above all, they point to the fundamental fact that Indian society owes its survival to its capacity for fusing and assimilating different cultures. These may well serve as rich resources for promoting emotional integration in India of today."

—Dr. S. Radhakrishnan

I. WHAT IS ARCHAEOLOGY?

Archaeology derives its name from the Greek words, "archaious" meaning "ancient" and "logos" or "knowledge". Hence, etymologically it should mean, "the science of ancient things". But the word has taken on a slightly different meaning and is defined as a branch of knowledge dealing with the "remains of ancient human activity". There are many things ancient in India, the scriptures, the *Ramayana,* the *Mahabharata* for example, but their study directly and by itself forms no part of archaeology unless, of course, they are "unearthed in some form or other as material relics of the activities of the ancient man".

This word "unearthed" takes us to the root of the matter. Archaeology is chiefly digging up the earth to find the remains of the past which lie buried under it. It will be wrong, however, to say that archaeology is all digging up and discovering the remains of old buildings, coins, relics of the past, etc., and nothing else. Archaeology is something more than that. But the primary work of an archaeologist is to dig up the ancient remains—pots and tools, weapons and buildings—and once they are excavated scientifically, then the question comes of restoring, conserving and publishing them not simply for information but also for intelligent appreciation and interpretation. Such interpretation involves linking them up with the history of the people who made them. Hence, we may define archaeology as "the systematic study of antiquities and the weaving of earlier history of nations and peoples from the remains of the buildings, burial places, implements, utensils and ornaments, belonging to a period of which we have few or no written records". History proper, as we have it, is a matter of written records. But mankind had started its history long before it developed the system of writing. If for the history of mankind we had to depend upon written records only, we could not have gone back further than a few thousand years or so. But man has been living in this planet for

about half a million years. He has left behind him the traces of his existence, pottery and tools and weapons, which lie buried in the bowels of the earth, layer on layer, ready to be unearthed by the archaeologist's spade. These buried remains, when unearthed, record the stages of his progress. With their help, archaeology has "extended history's view backward in time a hundredfold."

Among the ancient people, there were some who started writing history long after they had learnt to write. India, in spite of her hoary civilization, was not very much history-minded. Ancient Aryans have left us philosophy and poetry and religious literature, but hardly any books of history. Hence ancient history of India cannot be gathered from anything like books of history written by ancient Indians. It can only be reconstructed indirectly through literature, through coins, inscriptions, etc., unearthed by archaeologists. Indeed the first Education Minister of India, the late Maulana Azad, did not exaggerate when he said, "It would be literally true to say that the history of India is still concealed in the depths of the soil waiting for the archaeologists who will bring new data to light to reconstruct the history of ancient India." Hence the importance of archaeology in India.

Even when man learned writing, he had not the paper to write on and though with the invention of paper, history began to be written in some countries, yet "records written in paper perished far more easily than the history written in stone and metal." Hence, "archaeology", as Maulana Azad has put it, "offers almost the only key to the history of ancient times...... In Ninevah and Babylon excavations have unfolded to us the history of the ancient civilizations built by the Sumerians and the Akkadians of some five thousand years ago."

Archaeology is both a science and an art. As a science, it is an intellectual discipline to be distinguished from "antiquarianism" which can be pursued as a mere hobby. It is also an art as "the skill that an archaeologist is required to show practically at every turn in the pursuit of his craft, in excavations, in the preservation of antiquities or monuments, in the museum work" shows that it is an art. Archaeology presupposes many-sided skills, particularly the skill in digging properly and in relat-

ing and interpreting the finds. Thus it involves work on the field as well as sequestered study. A modern archaeologist should be neither "the purely stay at home arm-chair savant of the old school", nor a mere field worker "who refuses to avail himself of the ancient literary and inscriptional evidence". He must have the qualification of both, and should be "at once scholar, historian and the worker in the field."

In recent times, the importance of the field worker has increased. Indeed, the volume of work done in the field by archaeologists nowadays and the importance attached to such work make it difficult to regard the scholar exclusively confined to his study as an archaeologist at all. But the scholar has his uses still, for as an archaeological scholar has put it, "the purely scientific field worker in Egypt and Mesopotamia cannot progress without the help of a student colleague who reads the hieroglyphic (i.e., ancient Egyptian writing where picture of an object stood for a word or syllable) or cuneiform (that is, wedge-shaped writing found in ancient inscriptions in Persia, Assyria, etc.) inscriptions that he finds, or that of the historian and the anthropologist; and obviously, the most useful man is he who can combine all these functions." It is not possible, however, to find one man possessing all these qualifications. Hence, archaeology progresses by "an intimate alliance of the men who are primarily field workers, but have a working knowledge of the languages and history of the ancient peoples whose relics they unearth, with those who are primarily scholars or historians but have a working knowledge of excavation and of conservation."

That the services of the scholar are essential to understand and interpret the remains is evident from the use of at least one class of scholars, namely, the epigraphists. They are the men who are experts in studying inscriptions on stones, statues, coins, etc. It is, of course, possible for an epigraphist to acquire training in field work as well. Indeed, a man combining both the skills is likely to achieve more than two men, one an epigraphist, pure and simple, and the other a mere field worker, can.

Archaeology is compounded of many disciplines; it calls into service other skills also. A knowledge of languages, chemistry, geology, photography, engineering and even pottery will stand an

archaeologist in good stead. All sorts of things, coins, jewellery, precious stones, etc. are dug up and a knowledge of these help him to record and describe them on the spot.

Archaeology is related to other subjects also. It is, as we have seen, a complement of history and hence bears closest relation to it. No modern historian can neglect archaeology if he is to pursue the study of history not as a record of wars and the story of kings but as "the organized knowledge of the development of human civilization." It is also related to anthropology, for "no archaeologist can neglect what the anthropologists can tell him of the culture of various races in modern times, if he is to understand those of ancient days : every anthropologist must have some knowledge of archaeology, if he is to know anything of the origins and reasons of what he is observing." With architecture also, archaeology is closely connected. Trained architects and surveyors are needed in the field to secure reliable plans of the finds. Thus the study of archaeology, in order to be effective, needs alliance with, and cooperation from, other allied subjects mentioned above.

II. EXCAVATION

Excavation is about the main part of archaeology. It has thrown light on thousands and thousands of years of human history which were hitherto a total blank. Written documents on which history mainly depends draw mostly upon "wars, political happenings, the chronicles of kings" and the literature of the time. But the archaeologist digs up "mass of objects illustrating the arts and handicrafts of the past, the temples in which men worshipped, the houses in which they lived, the setting in which their lives were spent" and thus supplies material for a kind of social history which could not be had otherwise. As Woolley has pointed out, for instance, "until Schliemann dug at Mycenae and Sir Arthur Evans in Crete, no one guessed that there had been a Minoan civilization. Not a single written word has been found to tell of it, yet we can trace the rise and fall of ancient Minoan power, can see again the splendours of the Palace of Minos, and imagine how life was lived alike there and in the crowded houses of the humbler folk". Egypt's history has been wonderfully recovered in astonishing detail by archaeological work and nearer home, the knowledge of Mohen-jo-Daro civilisation has been possible because of the excavations undertaken under Sir John Marshall at Mohen-jo-Daro and Harappa. Indeed, the contribution of scientific excavation to our knowledge of the past cannot be exaggerated.

Now, it may be asked as to why digging is at all necessary. How is it that things, houses, cities, etc. get buried under the earth ? Well, they do not actually sink beneath the earth as time passes, but the earth and debris cover them up and rise above them. Indeed, though it is imperceptible, every day it is happening and the lowering of the level is perceived only after years. When a place is abandoned, grasses and wild vegetation grow, dust settles and in course of centuries it presents the spectacle of mounds. Again, sometimes buildings are buried by volcanic action but such phenomena are rare. The wonderful preservation

of buildings and things in Pompeii—"the houses standing up to the second floor, the frescoes on the walls and all the furniture and household objects still in their places as the owners left them when they fled from the disaster"—has been possible because they were submerged under the debris of the volcano. As a result of careful digging, the whole city with its buildings and things has been unearthed. The case of Pompeii is, however, an exception. Similarly, a burnt site is generally undisturbed, for fire will destroy much, but not all. The ashes and broken brick-work will cover the rest which can be unearthed and restored centuries after by the archaeologist's spade. In the case of a city which has decayed slowly, not much is expected to be found in ruins, for the inhabitants will not leave anything behind them when they desert it. Even the material of the older buildings must have been used up to make new hutments.

Granted then, that if right sites are carefully and scientifically dug up, and the finds properly recorded and interpreted, the ruins can throw light on the history of the people inhabiting them, as few things else can. The question is how to find the right site. The truth is that such a site has generally some surface signs to lead an expert to think that digging would be worth-while. In some places there are big mounds marking ancient sites. Leonard Woolley says: "Herodotus, visiting Egypt in the fifth century B. C., remarked that the temples there always lay in a hollow; the reason was that while the mud-brick houses of the town were short-lived and new buildings constructed over the ruins of the old quickly raised the ground-level, the temples, built of stone and kept always in good repair, outlived many generations and remained at the same level throughout; on an Egyptian site, therefore, a square depression ringed about by mounds of crumbling grey brick gives the excavator a very obvious clue. Earth-works are enduring things, and the site, for instance, of a Roman camp in Britain can nearly always be traced by the low grass clad lines of its ramparts, and the round barrow of the old British dead are still clear to see upon the Downs; but even where there is nothing upstanding, surface indi-cations may not be lacking. In a dry summer the grass withers more quickly where the soil lies thin over the buried tops of stone

walls, and I have seen the entire plan of a Roman villa spread out before me where no spade had ever dug; darker lines in a field of growing corn or, in the very early morning, a difference of tone given by the dew on the blades, will show where buildings run underground."

Sometimes literary records also help to identify a site. In India, for instance, our mediaeval and ancient literature as well as records gathered from inscriptions on coins and plates have helped archaeologists in determining the localities of a number of ancient sites. The travel accounts of Fa-hien and Hiuen Tsang helped an early archaeological expert like Alexander Cunningham in fixing and finding out some ancient sites. Hence the knowledge of such literature is essential for an archaeologist, even before excavation begins. Ancient sites come to light also in the process of building activities and the digging of canals.

Thus experienced archaeologists go by indications, select the site, and then dig and investigate. Before actual digging starts, the excavator takes careful note of the site he is going to dig, for "no two ancient sites are exactly similar in nature." Digging in sandy African desert is different from digging, say, in Athens or in India where mounds are a usual site. Here is an interesting account of the formation of mounds :

"Mounds of the Bronze Age and Stone Age in various parts of Europe and Asia, that stand often to the height of forty or fifty feet, are built up slowly and steadily by the repeated collapse of mud-brick houses and by the retention upon a lived-on area of all the rubbish of living people and households. The process can still be seen in operation today in any Balkan village or Asiatic hamlet, where fires, warfare and occasional abandonment raise the level of each newly constructed village by a foot or so. Many villages in these regions stand on eminences which are simply the relics of earlier dwellings, levelled and rebuilt on time and time again". In this connection, it may be mentioned that India is full of such mounds which indicate the archaeological wealth lying buried in this country.

Once digging is started, the look of the site is destroyed.

Hence it is necessary before digging to take photographs of the site from all angles lest anything of possible scientific value might be destroyed before it is fully recorded. At all the subsequent stages of excavation, photos should be taken. In recent times, aerial photography has proved a great help to archaeologists enabling them to have faithful records of contours, otherwise not possible. Only after taking photographs of a site, excavation should be, and normally is, started for which spades, light pickaxes, shovels and later, knives and pen-knives and other delicate implements are used. After the object or objects are found, a description is prepared and the finds delicately handled so that they may not be broken. Excavation is a highly skilled work and lack of care may lead to destruction which is tantamount to unintentional vandalism. The finds must be carefully handled, recorded and conveyed to safe places like museums for preservation and study.

To sum up, the task of an excavator is heavy; he has to be expert in many things. He must "have some knowledge of elementary engineering and lifting heavy weights". He must know photography and be able to manage men who will work under him. He must have "an eye for the lie of the land" and must be able to guess "what he is likely to find from the appearance of the terrain." Indeed this "eye for country" is his great asset. And lastly, "the more he knows of the more studious side of his work of the styles of art or of tomb construction characteristic of the various periods of development of the ancient civilization he is investigating, the better."

III. EPIGRAPHY

Epigraphy is that branch of archaeology which studies inscriptions, i.e., writings engraved on some object. The writing on ancient remains was naturally done in ancient script. The epigraphist is the person who understands these scripts and can decipher the meanings of the inscriptions. There are, as has been indicated, a number of branches of archaeology, viz., excavation, epigraphy, numismatics (or concerning coins), architecture, study of ceramics (or concerning pottery), museums, etc. Each of these is important separately, in its own place, as well as in collaboration when reconstructing history. Mere digging may give us 'remains' but without a knowledge of epigraphy, we cannot read any writing which may have been inscribed on the remains and which may, if deciphered, throw light on, and explain facts in, history. It had been a common practice of ancient people to inscribe writings giving dates and chronicles of kings, recording gifts of land, giving advice to the people, quoting poems and detailing various things on tombs, temples, stupas, churches, palaces, houses, walls, rocks, pillars—earthen, wooden or metallic—slabs, bricks, earthenware pots, plates, precious and semi-precious stones, sculptures, metals, metallic objects, etc. In India, occasionally inscriptions were engraved also on coins, ivory plaques, conch and tortoise shells, and other material, while manuscripts and communications were written on birch-bark sheets, palmyra leaves, and even on pieces of cloth and silk. These writings may be grouped into various classes, viz., the sepulchral inscriptions, religious and mythological records, commercial documents, State documents, historical inscriptions, legal documents, etc. From epigraphical study of such inscriptions unearthed in a site, the social, political and cultural conditions of the people of a particular period may be obtained and their history reconstructed. Indeed, in India where we possess hardly any reliable ancient historical works or documents,

inscriptions have been the chief source of our knowledge of ancient history. As an eminent Indologist has remarked, "........our knowledge of ancient political history of India is derived not from historical works bequeathed to us by the Hindus, but almost entirely from the patient examination of a large number of records, not written as a rule with any deliberate intention of relating history, that have survived to our time in the shape of inscriptions on stone and copper. And we are chiefly dependent on those records, not only for the political history, but also for nearly all the chronological details that we require in connection with the linguistic, palaeographic, literary, religious, social and administrative developments, and, in short, in connection with every development of research into the past of India."

Again, referring to the role of inscriptions in unravelling the history of India, Prof. E. Rapson said, "The inscriptions supply most valuable evidence as to the political, social and economic conditions of the period and the country to which they belong. They testify, on the one hand, to the restless activity of a military caste, and, on the other, to the stability of institutions, which were, as a rule, unaffected by military conquest. One conqueror follows another, but the administrations of each individual state remains unchanged either under the same prince or under some other member of his family, and the charters of monasteries are renewed as a matter of course by each new overlord."

Epigraphy is the science of deciphering ancient inscriptions; hence the role of epigraphy in archaeological studies, and in reconstructing ancient history, particularly Indian history, can hardly be over-emphasised. The work of an excavator remains incomplete if the epigraphist is not by his side to decipher the meaning of the writings inscribed on the unearthed remains. Often a single document may enable one "to state precisely something about the chronology of the stratum, in which it be found, relating all the objects of that stratum and others with one another, and with the history of a mound, a town, or even a country. Quite a galaxy of kings, emperors, tribes and peoples passes before our mind's eye in the inscriptional literature of ancient India, as of many other countries."

The chronology of kings and events has also been largely reconstructed by epigraphy. We have learnt a great deal from the remains excavated at Mohen-jo-Daro and Harappa, but we could have known still more about the authors of Mohen-jo-Daro civilization if only we could indisputably decipher the script on seals and other objects found in these sites.

The earliest inscriptions unearthed up till now in India relate of course to the finds at Mohen-jo-Daro and Harappa (both now in Pakistan), Rupar (Punjab), Lothal (Gujarat) and Kalibangan (Rajasthan). As already indicated, scholars have not yet been able finally to decipher the script inscribed on the seals found at these sites.

The earliest inscriptions, found in India and deciphered, belong to the Maurya period and are mostly in the Brahmi script. Asokan inscriptions fall in this category. They were mostly written in Brahmi and in some cases in the Kharoshthi, Greek and Aramaic scripts*. A flood of light was thrown on this period of ancient history by the epigraphists who could decipher these inscriptions and tell us what that great king did for his people, what contacts were made by India with other countries, how Asoka sent missions abroad to preach the gospel of ahimsa and a hundred other things which have a bearing on the history of the time. Everybody knows of that wonderful thing, the iron pillar at Qutb in Delhi. Now, there is a Sanskrit verse engraved on it and from this inscription, we can know that it was set up by one king Chandra on a hill named Vishnupada and some historians have identified this king as Chandragupta II of the Gupta dynasty. In this way, numerous objects, copper and bronze plates, pots, vase, etc., have been unearthed in different parts of the country with inscriptions on them and the epigraphists read and explain these inscriptions and scholars relate them to history. And these inscriptions help us to reconstruct not only social and political history of a period, but may also throw light on literature. Such inscriptions, for instance, as the one at Aihole "may finally settle

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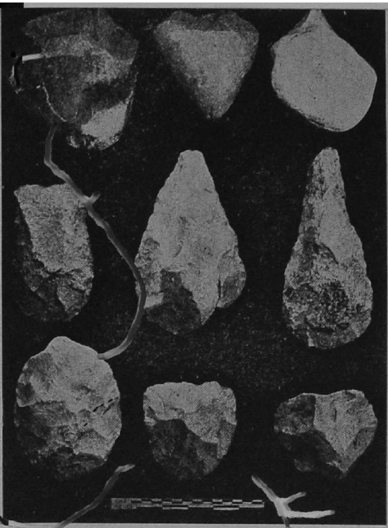
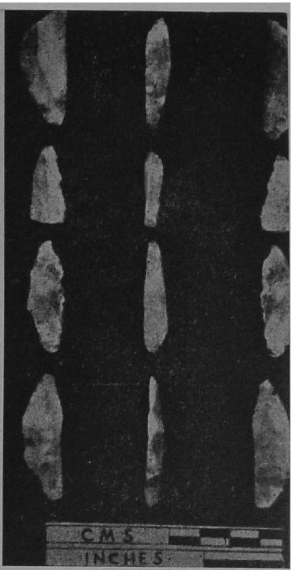
*Asokan inscriptions in Greek and Aramaic have been discovered in recent years near Kandahar in Afghanistan.

the lower limits of the dates of Kalidasa and Bharavi, by specifically mentioning these poets." As Dr. Buhler has said, "On the one hand, we owe to it particular and very important data which definitely fix the time of prominent authors, as for instance, recently the time of the dramatic poet Rajasekhara, whose pupils and patrons, the kings Mahendrapala and Mahipala, ruled during the last decade of the ninth century and in the beginning of the tenth century of our era, as shown by Mr. Fleet and Prof. Kielhorn. On the other hand, the comparison of the partly insignificant notices in the inscriptions of the present day, permits us to have an occasional peep into the development of all the types of literature and of all the religious systems, a peep whose worth is considerably significant in the absence of really historical detail."

Similarly, certain early inscriptions in Malwa contain passages borrowed from *Ritusamhara* and this fact helps in the fixation of the date of Kalidasa, just as the inscription of Pulakesin helps to fix the date of Bharavi.



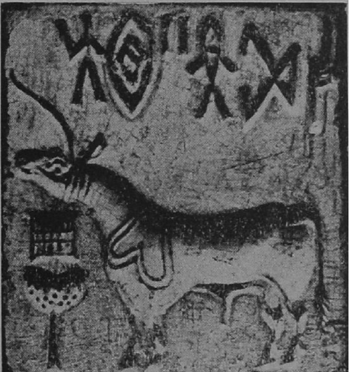
Palaeolithic tools from different sites

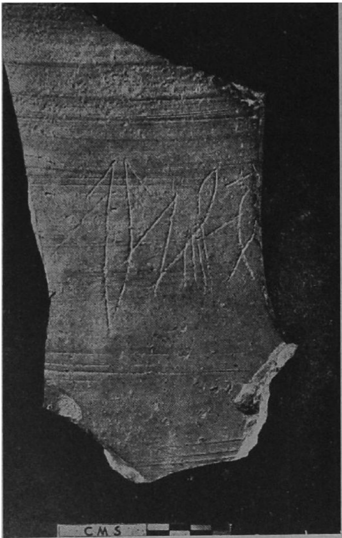


Microliths from Birbhanpur (West Bengal)

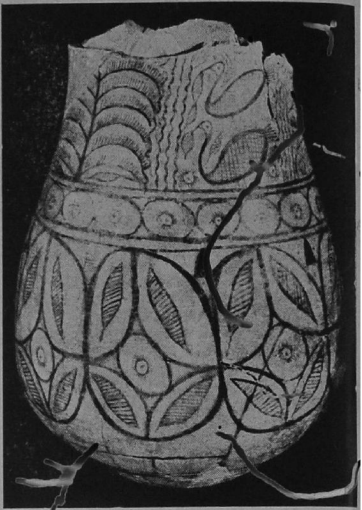
Mohen-jo-Daro : inscribed seal

A seal with animal figure and Indus Valley script found from Lothal (Gujarat)



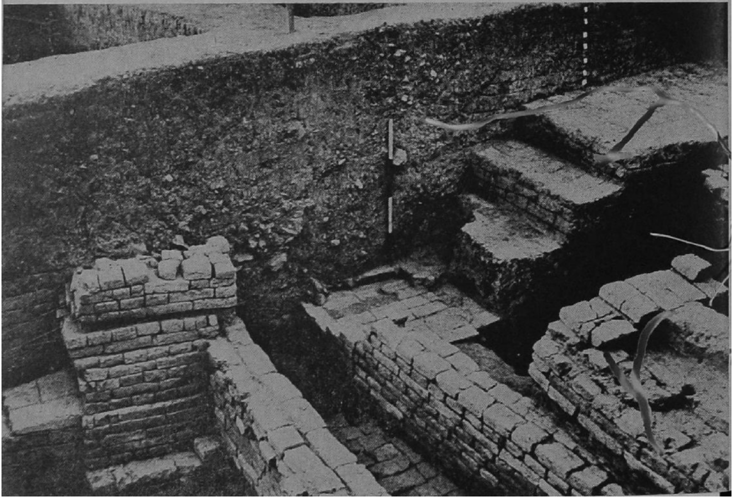


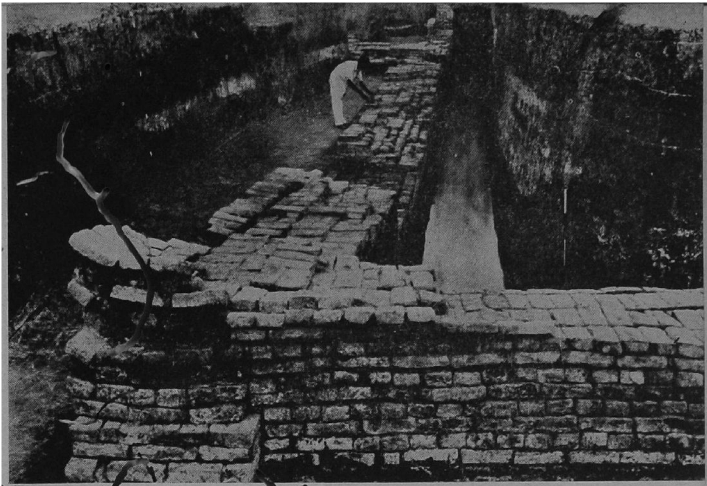
Kalibangan (Rajasthan) : a potsherd bearing an inscription



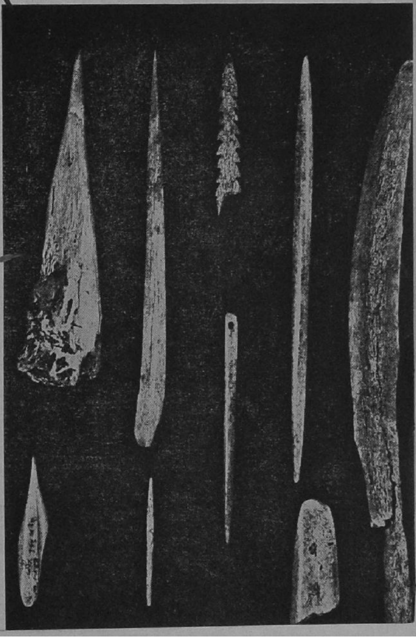
Painted jar discovered at Lothal

Lothal : a public drain





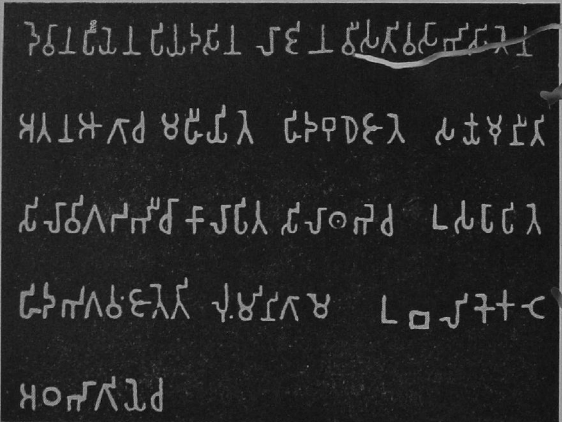
A view of the retaining walls of the dockyard unearthed at Lothal



Burzahom (Kashmir) : bone-tools used by the 'pit-dwellers'

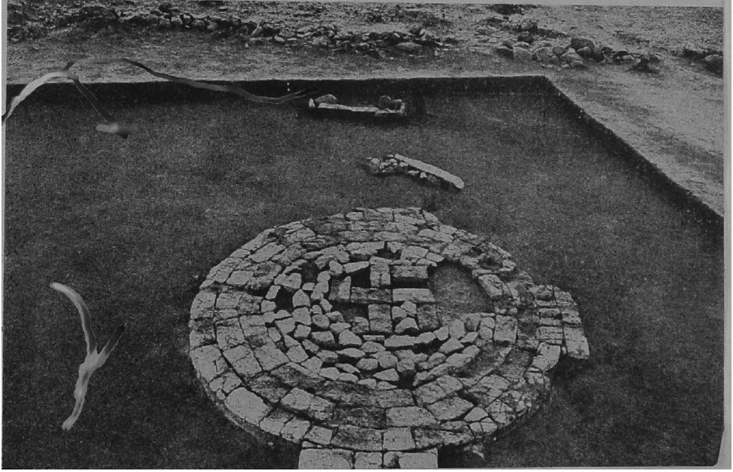
Painted Grey Ware from Ahichchhatra and Hastinapura (U.P.) and Rupar (Punjab)

Rummindei pillar-inscription of Aśoka in Brahmi script

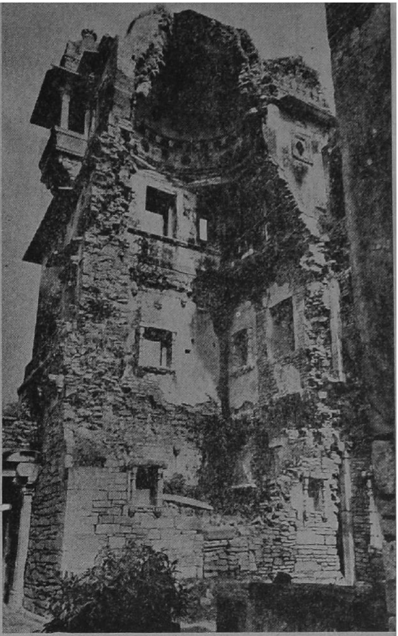


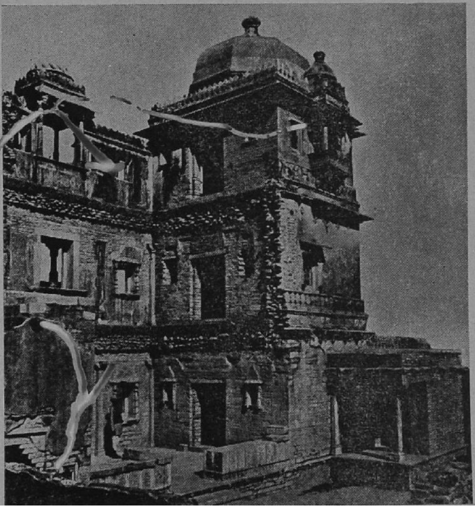
Amphitheatre found at Nagarjunakonda (Andkra Pradesh)

Nagarjunakonda : Stupa with Swastika base



Amaravati (Andhra Pradesh) : Purnaghata on a railing pillar





Part of Rana Kumbha's palace, Chittorgarh, before and after conservation

Main hall of the Sarnath Archaeological Museum. The lion-capital of Aśoka displayed here occupies a place of pride in the Museum.

IV. THE ARCHAEOLOGICAL SURVEY OF INDIA (1862-1901)

The responsibility for archaeological work in this country has been shouldered mainly by the Archaeological Survey of India which is under the Union Ministry of Education. It has also partly been shared by the State Governments and in some cases by universities and research institutions.

The beginnings were not very encouraging. The Archaeological Survey of India came formally into being in 1862. The events preceding its birth cover another seventy years. Sir William Jones, in whom the cause of archaeological learning found so great a champion, came to India in 1783 and next year the Royal Asiatic Society, whose soul he was presently to become, was founded with the object, among other things, of enquiring "into the history......the Antiquities, Arts, Sciences and Literatures of Asia". Even Sir William Jones had his predecessors in the field but it was he who realized "for the first time the need for co-ordinating" such efforts and further investigation to be pursued on "systematic lines". The Asiatic Society gave a great impetus to the study of antiquities and "contributions commenced pouring in......announcing new finds or new interpretations of materials already known" which were published in *Asiatick Researches,* a journal started in 1788. In 1814, a museum was set up and new finds were housed in it. Sir William Jones himself identified Greek Sandrokottoos, with Chandragupta Maurya and located Palibothra at the confluence of the Ganga and the Son. Williamson, his colleague, deciphered "the Gupta as well as the *Kutila* Script". But these pioneer efforts were the result of individual enterprise and not of official interest. In 1800, however, Francis Buchanan was officially deputed to conduct a survey of Mysore and later in 1807, of the territories under "immediate authority of the Presidency of Fort William" and "adjacent countries". The report of the surveys proved a very valuable document. Buchanan realized "the value

of detailed plans and exact measurements of ancient buildings and historic sites". It was a pity, however, that such surveys were not continued by the Government.

In 1833, James Prinsep, Assay-master, Calcutta Mint, became the Secretary of the Asiatic Society. It was this remarkable man who discovered the key to the hitherto mysterious Brahmi alphabet in which the earliest inscriptions of India in the historical period were written. Later he deciphered also the mystery of the Kharoshthi alphabet which is used in the North-West. This was a very great advance indeed, as a result of which the inscriptions of Piyadasi could be read and understood and Piyadasi identified with the Emperor Asoka. Prinsep himself knew the value of accurate field survey. Indeed he was the first to use the phrase "field archaeology". After Prinsep's death, the work was continued by others, notably Cunningham, who was a Lieutenant of the Royal Engineers and had already proved his worth as an archaeologist and numismatist. In 1848, he formulated a plan for an Indian Archaeological Survey but his efforts bore no fruit. In 1861, however, his memorandum to Lord Canning produced happy results. The Governor-General was convinced of the necessity of investigation and collection of the remains of which the country was full. The task was naturally entrusted to Cunningham who was made the first Archaeological Surveyor of India, the aim of the survey being "an accurate description—illustrated by plans, measurements, drawings or photographs and by copies of inscriptions—of such remains as deserve notice, with the history of them so far as it may be traceable, and a record of the traditions that are retained regarding them".

Cunningham was dominated by the idea of describing the ancient geography of India and sought to "follow the foot-steps of the Chinese pilgrim Hwen-Thsang". Indeed he spent a good deal of his time in identifying the places visited by that Chinese pilgrim. Between November 1861 and January 1865 he covered an area "stretching from Gaya in the East to the Indus in the North-West, and from Kalsi in the North to the Narmada in the South, having carefully surveyed and reported on every monument of note in all the historical sites visited by him." All his

good work had, however, to be discontinued because the Archaeological Survey was abolished in February 1866.

The Survey was revived, however, in 1870, when Cunningham was recalled and made the Director-General of the department whose task was to undertake "a complete search over the whole country, and a systematic record and description of all architectural and other remains that are either remarkable for their antiquity, or their beauty or their historical interest". Cunningham was given a few European assistants with the provision that as far as possible intelligent Indians should be employed and trained to perform "the task of photographing, measuring and surveying buildings, directing excavations and the like and deciphering inscriptions."

Cunningham came back to his work in February 1871 and started the survey of Delhi and Agra. Next year he toured Rajputana, Bundelkhand, Mathura, Bodh Gaya and Gaur. During his service, from which he retired in 1885, he put in an enormous amount of labour to organize his department and to explore the vast untapped field of archaeology in India. His work may be summed up in the words he wrote a few months before his retirement :

"I have identified the sites of many of the chief cities and most famous places of ancient India, such as the rock of Aornos, the city of Taxila and the fortress of Sangala, all connected with the history of Alexander the Great. In India I have found the sites of the celebrated cities of Sankisa, Sravasti and Kausambi, all intimately connected with the history of Buddha. Amongst other discoveries I may mention the Great Stupa of Bharhut, on which most of the principal events of Buddha's life were sculptured and inscribed. I have found three dated inscriptions of King Asoka, and my assistants have brought to light a new pillar of Asoka, and a new text of his rock edicts in Bactrian characters, in which the whole of the 12th edict.......is complete. I have traced the Gupta style of architecture in the temples of the Gupta kings at Tigowa, Bilsar, Bhitargaon, Kuthera, and Deogarh, and I have discovered new inscriptions of this powerful dynasty at Eran, Udayagiri and other places."

Besides survey and exploration, Cunningham emphasised

the importance of epigraphy also. The publication of *Indian Antiquary* in 1872 by James Burgess gave an opportunity to publish valuable inscriptions with texts, translations and sometimes even with facsimiles. Cunningham brought some order in the publication of these valuable documents which were not often published in a connected form. He was responsible for the publication in 1877 of the 1st Volume of *Corpus Inscriptionum Indicarum* containing "carefully edited texts of all the available inscriptions of Asoka and his grandson with translations and lithographic facsimiles." In 1883, at his suggestion, J. F. Fleet was appointed Government Epigraphist and he edited "the inscriptions of the Early Guptas and others connected with them". The inscriptions edited by Fleet set a norm which is still followed by present-day epigraphists.

To stop the treasure hunters and others despoiling the objects of antiquity, steps were taken under the new Treasure Trove Act of 1878 by the provision of which the Government could take possession of any treasure unearthed whose value was more than Rs. 10/-.

During Lord Ripon's time, Major H. H. Cole was appointed a Curator of Ancient Monuments with duties to prepare classified lists of ancient monuments of each province and advise the Government about the restoration and conservation of ancient monuments. Cole formulated a programme of conservation work for the future and produced the *Preservation of National Monuments in India,* ten folio volumes with illustrations of some famous monuments in India.

Cunningham retired in 1855. His works include, among others, *Ancient Geography of India, The Stupa of Bharhut* and *The Book of Indian Eras* and his contribution to Indian archaeology was great. After his retirement, the surveys of Northern and Southern India were amalgamated and put under Dr. Burgess as the Director-General with responsibilities of survey, conservation and research. During Burgess's time, British India was divided into five circles, namely, Madras, Bombay, Punjab (with Sind and Rajputana), North-West (present U.P.) Provinces (with Central India and the Central Provinces) and Bengal (with Assam). Before he was called upon to fill the post of Director-

General he had already done much work including the survey of the remains round Vijayawada and the Amaravati and Jaggayyapata Stupas and the examination of the Chalukyan temples in Dharwar District. In 1886, at his suggestion an epigraphist, Dr. Hultzsch, well-versed in Sanskrit, Pali and the Dravidian languages, was appointed.

As Director-General, Burgess directed his attention to obtain the details of the architectural measurements and drawings. Most of his time and energy were devoted to architectural survey and he could not take much active interest in excavation. An important exception, however, was the digging up of the Kankali Tila mound at Mathura which unearthed sculptures with dated inscriptions. He insisted on a professional control of excavation and pressed for making archaeological digging illegal by anybody except the Archaeological Survey. It was at his instance that the Government "debarred public officers from disposing of, without official approval, antiquities found or acquired by them" and forbade the excavation of ancient remains of any kind without the previous consent of the Archaeological Survey. He also started a quarterly publication, *Epigraphia Indica,* which published valuable articles containing inscriptions edited by distinguished epigraphical scholars. At the time of his retirement, an enormous quantity of materials was collected, a large part of which went into twenty magnificent volumes, including the seven which formed part of the *Archaeological Survey of India New Imperial Series,* while the rest were sufficient to fill twelve large volumes in the *New Imperial Series* and one of the *Epigraphia Indica.*

After Burgess's retirement Indian archaeology fell on evil days. The staff of the department was drastically reduced and many parts of the country were left without any surveyors. The chaos continued till the end of the last century when in 1898, the Government of India, realizing the shocking state of affairs, submitted to the Secretary of State some proposals for the reorganization of archaeological work in India. These proposals provided for an Archaeological Surveyor in charge of each of the five Circles, namely, Bombay with Sind and Berar; Madras and Coorg; Punjab, Baluchistan and Ajmer; North-western

Provinces; Bengal and Assam. The Surveyors were placed under the administrative control of the Local Governments and they were required to do conservation work entirely. Thus excavation and exploration were not given any importance. Epigraphy, however, received a different treatment. Dr. Hultzsch (who with his staff was considered to be "the only people who were able to decipher the old Tamil inscriptions") was made permanent and epigraphy was given further encouragement. One good thing about this new scheme was that service in the Survey was made pensionable. The scheme was sanctioned by the Secretary of State in May 1899.

In the meantime, Lord Curzon had reached India as the Viceroy and Governor-General and things did not take much time to look up. On September 23 he recorded in a minute his strong reaction which may be quoted at some length to give a picture of Indian archaeology at the time of his arrival in India. On the division into five Survey Circles and the appointment of surveyors, he said : "The geographical arrangement of these circles is fantastic in the extreme. Sind is lumped together with Bombay and Berar; Baluchistan is tacked on to the Panjab, and Ajmer is casually thrown in. The Central Provinces are added to the North Western Provinces.....Bengal.....has no surveyor. The surveyors in the remaining circles, instead of being scholars, or even engineers, are merely, as their name implies—surveyors, who make drawings, and write reports, but can only at a considerable risk be entrusted with the task of renovation or repair." And again : "In practice, too, the most whimsical difference prevails between the policy adopted in different provinces. No Local Government is *per se* interested in archaeology. It is occupied with grosser and more material concerns. The result is that the progress or suspension of archaeological work, the decay of priceless treasures of art, the restoration, sometimes involving the prostitution of exquisite palaces and halls—all depend upon the taste, or interest, or caprice of the Local Governor, who, if in a few rare cases he exerts himself in the cause of art and good taste, may on the other hand, if he chose, leave an indelible and fatal mark upon the

monuments of his province, or more frequently, be content with leaving no mark at all.

"Thus it has come about that owing to the absence of any central and duly qualified advising authority, not merely are beautiful and famous buildings crumbling to decay, but there is neither principle nor unity in conservation or repair, while from time to time horrors are still committed that make the student shudder and turn grey. . . .

"The continuance of this state of affairs seems to me little short of a scandal. Were Germany the ruling power in India, I do not hesitate to say that she would be spending many lakhs a year on a task to what we have hitherto rather plumed ourselves on our generosity in devoting Rs. 61,000, raised only a little more than a year ago to 88,000. . . . . .

"When I reflect upon the sums of money that are gaily dispensed for the construction of impossible forts in impossible places, which are to sustain an impossible siege against an impossible foe, I do venture to hope that so mean a standard may not again be pleaded, at any rate in my time."

On December 20, 1900, a set of definite proposals embodying the spirit of the minute mentioned above was submitted to the Secretary of State. They were designed to "eliminate the existing lack of responsibility and system"; they recommended the revival of the post of Director-General who must be a "trained explorer combining archaeological knowledge with engineering skill" and who must exercise a general supervision over all archaeological activities including excavation, preservation, repair and epigraphy in the country and co-ordinate them. A sum of rupees one lakh annually for archaeological work of special importance was also pressed for. Although conservation was given the first place in the new proposals, Lord Curzon's ideas were clear and correct and he visualized that "it is in the exploration and study of purely Indian remains, in the probing of the archaic mounds, in the excavation of old Indian cities and in the copying and reading of ancient inscriptions that a good deal of the. . . .work of the archaeologists will in future live." Talking of epigraphy, he said in a speech at the Asiatic Society of Bengal on February 6, 1900, that it "should not be set behind

research any more than research should be set behind conservation. All are ordered parts of any scientific scheme of antiquarian work. It is, in my judgment, equally our duty to dig and discover, to classify, reproduce and describe, to copy and decipher and to cherish and conserve."

The proposals were accepted by the Secretary of State on November 29, 1901, experimentally for a five-year term and Mr. (afterwards Sir) John Marshall who had already worked in Greece, South Turkey and Crete was selected as the Director-General. His duties as laid down were : "The most important of his functions is to secure that the ancient monuments of the country are properly cared for, that they are not utilized for purposes which are inappropriate or unseemly, that repairs are executed when required and that any restorations, which may be attempted, are conducted on artistic lines. But his duties extend to the exercise of a general supervision over all archaeological work in the country, whether it be that of excavation, or preservation, or repair, or of the registration and description of monuments and ancient remains or of antiquarian research; he is to assist the provincial Surveys........; and to advise the Government of India as to the operations for which special subsidies may be allotted from Imperial funds. He is to co-ordinate and bring up to date the local Survey and reports; and he is to submit annually to the Government of India a report on the progress effected during each financial year."

Thus with the advent of Curzon and the appointment of Sir John Marshall as the Director-General conditions were made favourable for archaeology to come into its own in India.

V. THE ARCHAEOLOGICAL SURVEY OF INDIA (1902-1966)

Marshall reached India in February 1902 and within a year he formulated definite principles about excavation and conservation which he considered most important. He laid down definite rules for conservation and in the matter of excavation he was anxious to avoid digging unscientifically and wanted to "rescue any sites in danger of destruction and carry forward general exploration on a limited scale". He wanted the *Annual Reports* of the Director-General to contain not only official records but also "interesting and readable accounts of the progress of archaeological research in India" and accounts "of the works of restoration and preservation of important buildings and sites, of excavation and fresh discoveries" with illustrations. A summary of the epigraphical, numismatic, exploratory and other works of the Survey was also to be included. Excavation by incompetent persons was discouraged, for it is infinitely better to leave antiquities underground till such (experienced) supervision is available than to destroy in digging them out half the evidence which they might afford."

It was noticed that antique remains in historical sites, even wall paintings, were carried away by people and it was necessary to stop the practice by legislation. So in 1904, the Ancient Monuments Preservation Act was passed "to provide for the preservation of ancient monuments, for the exercise of control over traffic in antiquities and over excavation in certain places and for the protection and acquisition in certain cases of ancient monuments and of objects of archaeological, historical or artistic interest."

An illusion was somehow created in the mind of the authorities that the archaeological work in the country was a temporary affair and that after some time when the work was complete, the Survey would be broken up. In a note in April 1904, Marshall sought to remove this illusion and said, "I may

refer at the outset to an illusory belief to which expression has often been given that a time would soon come when the Archaeological Survey might be disbanded and the work of conservation, if not complete, accomplished through the agency of the Public Works Department. That time has receded further year by year, and the phantom might now, once for all, be laid to rest. The work of the archaeological officers is of a kind which cannot be discharged by any other existing agency and it can only cease if the Government cease to admit their responsibility for the preservation of the ancient remains of the country." The Government of India approved of this note and forwarded it to the Secretary of State, recommending a permanent status for the Survey and a temporary extension till the necessary consultations with the Provincial Governments were complete. The extension was granted. The question was again reviewed and the Government of India again recommended the retention of the Survey on a permanent basis. This time the recommendation was accepted by the Secretary of State. Accordingly, the Government of India announced on April 28, 1906 that the Survey was made a permanent department under the government. Three more officers, one of them, Dr. Sten Konow, were added to the department. Dr. Konow, appointed as the Government Epigraphist for India was attached to the Director-General for helping the latter in the matter of North Indian Epigraphy.

In 1911, a conference of orientalists recommended the training of young Indians and the recruitment of competent Indians to the department. In 1905, it had been decided that the Superintendents would be recruited in England and Assistant Superintendents in India. But this decision was not always followed. In 1911, it was pointed out that barring epigraphy, where Indian scholars had been most successful, "it would be inadvisable at present to hold out hopes for Indians to be employed in higher grades of the Department in a larger degree".

In 1915, a review of the archaeological progress in the country was prepared by Marshall and published by the Government. There he set forth the activities of all branches of the Department and enunciated principles and policies guiding them.

The First World War saw a curtailment of the activities of the Department and the position became worse after the conclusion of peace owing to the unstable conditions brought about by the war. Under the Government of India Act, 1919, the Department was reorganized with six new posts added to it. Then in 1923, came Lord Inchcape with his axe and suggested 90% cut in its funds. It was, however, saved from virtual abolition by the Secretary of State and the Governor-General and it escaped only with a 22½% cut.

Indian archaeology had in the meantime made great progress. In the beginning, the Survey was concerned mainly with the monuments dating from the Maurya period. Very little archaeological evidence of a period earlier than Buddha was unearthed. The valleys of the rivers occupied by the Aryans were not systematically explored and no one dreamt that evidence relating to a period more than a thousand years earlier than that of the Aryans was waiting for the archaeologist's spade. The excavations carried out by Daya Ram Sahni at Harappa (Montgomery District) and the discovery of the remains in Mohen-jo-Daro (Larkana District) by R. D. Banerjee opened up a new vista of India's past. The work was taken up by Sir John Marshall who organised, with the assistance of Hargreaves, Dikshit and Vats, large-scale excavations of Mohen-jo-Daro. The result, viz., the discovery of the Mohen-jo-Daro civilization has thrown the history of India back by 2000 years. Naturally, the prestige of the Department went high and in 1925-26, grant for exploration was increased to Rs. 92,000 and to Rs. 2 lakh and a half in the subsequent year. The excavation at Mohen-jo-Daro and Harappa opened the eyes of the public to the importance of excavation in reconstructing the history of India. In 1924, Sir John Marshall wrote :

"Hitherto India has almost universally been regarded as one of the younger countries of the world. Apart from palaeolithic and neolithic implements and such rude primitive remains as the Cyclopean walls of Rajagriha, no monuments of note were known to exist of an earlier date than the third century B.C., when Greece had already passed her zenith and when the mighty empires of Mesopotamia and Egypt had been all but forgotten. Now,

at a single bound, we have taken back our knowledge of Indian civilization some 3,000 years earlier and have established the fact that in the third millennium before Christ, and even before that, the peoples of Punjab and Sind were living in well-built cities and in possession of a relatively mature culture with a high standard of art and craftsmanship and a developed system of pictographic writing."

The work at Mohen-jo-Daro was continued till 1931 and at Harappa till 1934. In the meantime, Sir John Marshall had retired in 1928, but he was placed on special duty for writing monographs on the important excavated sites like Mohen-jo-Daro, Harappa, Taxila, Sanchi, Mandu, Delhi, Agra and Multan. He was also in charge of the excavation at Taxila. He finally left in 1934.

It must be remembered that in Marshall's time regular digging of important sites was undertaken for the first time in India. Officers of the Survey undertook exploration in the borders of India and even beyond them as Sir Aurel Stein did in Chinese Turkistan.

Exploration was mostly devoted to Buddhist relics during the first two decades of the present century because then, more was known about these than others. After the discovery of Mohen-jo-Daro and Harappa, resources of the Survey were also directed to the excavation of these sites.

After Marshall, Hargreaves became Director-General and three years later in 1931 Rai Bahadur Daya Ram Sahni. Owing to economic crisis in the country, drastic reduction of expenditure had to be effected. Staff was reduced and the Exploration Branch was disbanded.

In 1937, Rao Bahadur K. N. Dikshit became the Director-General. In 1938, Sir Leonard Woolley was invited to report on matters relating to future excavation. As a result of his recommendations, a large-scale excavation was undertaken (1940-44) at Ahichchhatra in the Bareilly District (U.P.) under the direction of Dikshit who also organised the first Indian prehistoric party to explore the Sabarmati valley of Gujarat.

The Second World War meant another set-back and along

with other economies, the printing of archaeological and epigraphical publications was stopped.

In 1944, Mortimer Wheeler succeeded Dikshit. There were many changes and improvements during his time. He reorganized the Survey and shortly after his arrival, he constituted an Excavation Branch under an officer. For, according to him, "the excavation of a site, like the ordering of a battle, must be thought out and co-ordinated by a single present and directing mind." Among other things, the post of a prehistorian was created and later that of a Joint Director-General. In 1946, a Superintendent for publications was appointed "to maintain the standard of Departmental publications at a suitably high level".

A Central Advisory Board of Archaeology was formed in 1945 to advise the Central Government on the needs of archaeology in India. The Board consisted of representatives of Universities, learned societies and the Government. The first effective step towards the establishment of a National Museum was taken about this time when a Committee was set up to report on the functions, administration, organization, etc. of the Museum. It was inaugurated in 1949.

Wheeler stressed the importance of training from the beginning. Practical instructions in field work and conservation courses were organized and students attended them. Officers of the Survey were also to be sent abroad in order to make contacts and learn the latest developments. It was he who brought Indian excavation into line with the best standards abroad.

Independence, and with it the partition, came in 1947. In the language of Wheeler, "almost the whole of the known extent of the earliest civilization of India, that of the Indus Valley" went to Pakistan while "almost all the Mohammadan monuments of the first importance remained in India." While the Indus Valley and Gandhara regions were lost by India, an additional area of about 160,000 square miles came under the Central Archaeological Department, owing to the merger of the States. Administrative changes consequent on such vast changes were effected. The Archaeological Survey of India was renamed the Department of Archaeology. In April 1948, Dr. N. P. Chakravarti became the Director-General during whose term

the National Museum was founded and housed in Rashtrapati Bhavan (then the Government House), New Delhi. It will be interesting to recall here that an exhibition, representing various facets of Indian art through the ages, was held between November 1947 and February 1948 at London under the auspices of the Royal Academy of Arts. The late Sarojini Naidu took a leading part in organising it. It was acclaimed as "undoubtedly by far the largest and most comprehensive Exhibition of the arts of India and Pakistan that has ever been seen in Europe." The masterpieces displayed here were later exhibited at Rashtrapati Bhavan in New Delhi. Encouraged by the popularity the Exhibition enjoyed among the people, the Government of India decided to make it permanent. This Exhibition formed the nucleus of the National Museum which was inaugurated on August 15, 1949. The Museum has since shifted to its own building at Janpath and functions as an independent institution.

Since the inauguration of the Constitution on January 26, 1950, the allocation of functions relating to archaeology between the Union and the States came to be as follows :

"1. Union : ancient and historical monuments......and archaeological sites and remains, declared by Parliament by law to be of national importance; and

2. State : ancient and historical monuments......other than those declared by Parliament to be of national importance.

3. Besides these two categories, both the Union and the States would have concurrent jurisdiction over archaeological sites and remains other than those declared by Parliament by law to be of national importance."

Dr. Chakravarty was succeeded in July 1950 by Shri Madho Swarup Vats, and the latter by Shri Amalananda Ghosh in March 1953 who is the present Director-General. The Department of Archaeology is now known as the Archaeological Survey of India. The Survey has 10 Circles, viz., Frontier Circle, Srinagar; North-Western Circle, Dehra Dun; Northern Circle, Agra; Central Circle, Bhopal; Mid-Eastern Circle, Patna; Eastern Circle, Calcutta; South-Eastern Circle, Visakhapatnam; South-Western Circle, Aurangabad; Western Circle, Baroda; and

Southern Circle, Madras. It has eleven separate specialised branches dealing with excavation, pre-history, epigraphs, chemical preservation, gardens, museums, etc. The archaeological integration of India is complete, and the Archaeological Survey of India has spread its organization all over the country.

The Survey has been expanding its activities since independence. It sent expeditions to Indonesia, Afghanistan and Nepal to work on the archaeology of those countries. In response to UNESCO's appeal, it participated in salvaging the ruins at Nubia in U.A.R.

The School of Archaeology, run by the Survey, at New Delhi, trains students in practical archaeology.

The Survey celebrated its centenary in 1961. A large-scale exhibition presenting a panorama of India's archaeological wealth and the first International Conference on Asian Archaeology were held in New Delhi to commemorate the occasion.

To provide facilities for archaeological dating by radioactive carbon, a Radiocarbon Laboratory has been set up at the Tata Institute of Fundamental Research, Bombay. Radiocarbon dating is the technique of determining the chronology of ancient civilizations by measuring the radiocarbon content in organic remains.

In addition to the work done earlier, a village-to-village survey is being carried out since 1957 to explore the archaeological wealth of India.

This account would be incomplete without a reference to the valuable archaeological work which was done by the princely states of Mysore, Kashmir, Pudukkottai, Mayurbhanj, Hyderabad, Gwalior, Travancore, Cochin, Bhopal, Baroda and Jaipur prior to their merger with the Indian Union. Equally significant has been the contribution made by such bodies as the Deccan College Post-graduate and Research Institute, Poona, and the Kashi Prasad Jayaswal Research Institute, Patna, and the Universities of Calcutta, Allahabad, Sagar, Baroda, Banaras and Patna.

Valuable work is being done also by State Governments and other institutions to unravel India's past and to preserve her vast archaeological treasures.

VI. ARCHAEOLOGICAL AGES IN INDIA

It was suggested by a European scholar in 1863 that history of man could be divided into three main stages according to the nature of the implements he used at different times. Thus the first stage was the one when metal was unknown and tools and weapons were made of wood, stone, bone, antlers or ivory. This stage is called the Stone Age. The second stage was reached when copper began to be melted and bronze, alloy of copper and tin, made. This was the Bronze Age. The third and the final stage came with man's knowledge of the use of iron and was named the Iron Age.

Accordingly, archaeologists have been trying to hunt for evidences of different ages in different places by digging and unearthing remains of tools, etc. In India also, such activity has gone on and many sites have been dug up to find out the remains indicating the particular stage or stages of culture through which the particular region passed.

Roughly speaking, 4000 B.C. is the date of man's discovery of metal and the period previous to it has been specified as the Stone Age. The Stone Age itself is again divided into the old, i.e., the palaeolithic, the middle, i.e., the mesolithic, and the new Stone Age or the neolithic age.

Of the explorers for the prehistoric remains in India, Foote was the most prominent. He, along with King, Oldhan and others discovered a large number of sites where palaeolithic materials were obtained. The first palaeolithic tool in India was found at Pallavaram near Madras in 1863. Other sites include Sohan (Rawalpindi District, Pakistan); places in Madras, Gujarat, Maharashtra, Andhra Pradesh, Madhya Pradesh, Rajasthan; in Mayurbhanj District, Orissa; in the Beas and Banganga valleys; also in the Krishna, Sabarmati, Mahi, Orsang and Narmada valleys; in the Rihand basin (U. P.) and elsewhere. Bilaspur, Daulatpur, Dehra, Guler and Nalagarh are some of the prominent sites of the Old Stone Age culture in India. At Guler a series of five terraces has also been discovered. The

upper four terraces are associated with tools. In this connection the Billa Sugram group of caves in Kurnool District may be mentioned. These caves yielded fossil mammalia and bone implements. The implements found in the various palaeolithic sites include hand-axes, cleavers, pebble tools, scrapers, flakes, etc. The vast majority of the implements were made of quartzite. Though a good deal of research has been done with the help of these finds, a running story of the palaeolithic age in India cannot yet be reconstructed. From the data available, one can conclude that the palaeolithic man in India preferred to live in river banks and procured food by hunting birds and animals. He lived in caves also with springs nearby for his water supply.

To the mesolithic or the middle Stone Age, two sets of industries, microlithic and proto-neolithic have been assigned. The weapons used by the middle Stone Age were blades, battered as well as serrated, crescents, etc., made of jasper, agate, flint, quartz, etc. Probably these tiny tools were attached to handles.

The implements belonging to the mesolithic age have been found in many sites in India, more prominent being Tirunelveli District (Madras), Sabarmati valley, Khandivli and other sites in Maharashtra and Gujarat, lower Godavari basin, Narmada valley, Mahī valley, Brahmagiri in Mysore and Birbhanpur in West Bengal.

The neolithic or the new Stone Age implements were different, ground and polished and made of Traprock. They included axes, adzes, stick-stones, polishers, hammer stones, etc. The earliest known neoliths were discovered by De Terra at Burzahom in Kashmir. Three cultural deposits from the top downwards were discovered during the excavation of this site "forming a total accumulation of 12 feet above the virgin soil". The topmost stratum corresponded to the historical time, *circa* fourth century A.D., the stratum below to post-Harappa culture and the lowest to neolithic age. A fresh excavation at Burzahom has shown that the earliest settlers lived in pits, provided with landing steps and in some cases with niches. The inhabitants used polished stone axes and bone-tools and a kind of mat-impressed grey ware. Polished stone axes—the typical weapon of the neolithic age—have been obtained from other sites includ-

ing "Hamirpur, Allahabad and Banda Districts in the United Provinces; Chhatarpur and Panna States in Central India; Garhi Morila and Buhuterai in Saugor District, Central Provinces; Hazaribagh, Patna, Ranchi, Santal Parganas and Singhbhum Districts in Bihar; Darjeeling and Nadia Districts in West Bengal; Garo Hills, Naga Hills and Cachar Districts in Assam; Raichur and Warangal Districts, Hyderabad State; Bangalore and Chitaldrug Districts, Mysore State; and Anantpur, Bellary, Chingleput, Guntur, North Arcot, Salem and Tanjore Districts in Madras. In the North-West, specimens have been obtained from the bank of the Indus opposite Shadipur, 21 miles south-west of Attock."

It appears that Bellary District (Mysore) and the neighbouring territories in Mysore and Andhra Pradesh were the focus of the neolithic culture. The excavations at Brahmagiri revealed "the existence of a Polished Stone Age culture between the beginning of the first millennium B.C. and C. 300 B.C." The people here appear also to have some, if very restricted, knowledge of copper and bronze, for one copper chisel, one bronze and one copper rod have been unearthed here. The neolithic man in India was a food producer with a somewhat settled life in contrast to his predecessors who had to collect food and go from place to place. The neolithic culture was followed by that of the iron age somewhere in the beginning of the third century B.C.

The excavations at Harappa and Mohen-jo-Daro in the twenties of the present century and later revealed existence of a culture in India earlier than the Aryan, and though the very valuable finds have not yet yielded a definite "historical conception that would show clearly the beginning and the disappearance of this ancient culture of the Indus valley", yet they have revolutionized the conception of Indian history. Referring to the excavations carried out at Mohen-jo-Daro, Sir John Marshall said :

"They exhibit the Indus peoples of the fourth and third (correctly third and second) millennia B.C., in possession of a highly developed culture in which no vestige of Indo-Aryan influence is to be found. Like the rest of Western Asia, the Indus country is still in the Chalcolithic Age—that age in which arms and utensils of stone continue to be used side by side with those of copper

or bronze. Their society is organized in cities, their wealth derived mainly from agriculture and trade, which appears to have extended far and wide in all directions. They cultivate wheat and barley as well as the date palm. They have domesticated the humped zebu, buffalo and short-horned bull, besides the sheep, pig, dog, elephant and camel; but the cat and probably the horse are unknown to them. For transport they have wheeled vehicles, to which oxen, doubtless were yoked. They are skilful metal workers with a plentiful supply of gold, silver and copper. Lead, too, and tin are in use, but the latter only as an alloy in the making of bronze. With spinning and weaving they are thoroughly conversant. Their weapons of war and of the chase are the bow and arrow, spear, axe, dagger and mace. The sword they have not evolved; nor is there any evidence of defensive body armour. Among other implements, hatchets, sickles, saws, chisels and razors are made of both copper and bronze; knives and celts sometimes of these metals, sometimes of chert or other hard stones. For the crushing of grain they have the muller and saddle-quern, but not the circular grind-stone. Their domestic vessels are commonly of earthenware, turned on the wheel and not infrequently painted with encaustic designs; more rarely they are of copper, bronze or silver. The ornaments of the rich are made of the precious metals or of copper sometimes over-laid with gold, of faience, ivory, carnelian and other stones; for the poor, they are usually of shell or terracotta. Figurines and toys, for which there is a wide vogue, are of terracotta, and sheel and faience are freely used, as they are in Sumer and the West generally, not only for personal ornaments but for inlay work and other purposes. With the invention of writing, the Indus peoples are also familiar, and employ for this purpose a form of script which, though peculiar to India, is evidently analogous to other contemporary scripts of Western Asia and the Nearer East."

The culture described above extended beyond the Indus valley to as far east as Alamgirpur in the Ganga-Yamuna valley in Uttar Pradesh, as far north as Rupar in Punjab, and as far south as Lothal, Rangpur and Bhagatrav in Gujarat. The extent

of the culture was indeed remarkable. It was the most wide-spread of the Bronze Age cultures of Asia.

The excavations at Harappa and Mohen-jo-Daro brought to light many interesting facts including the design and layout of the cities with the streets and lanes cutting one another at right angles, their underground drainage system, etc. The Great Bath at Mohen-jo-Daro is another striking thing; made of polished bricks, it was 39 feet long, 29 feet wide and 8 feet deep with steps leading down to the floor and with small rooms along its perimeter. The excavated material has thrown a good deal of light on the life, ways and customs, and the activities of the people belonging to this period of Indian history. This culture reached its end by the middle of the second millennium B.C. and neither the origin nor the cause of its end has yet been ascertained.

Of course, various theories about the end of the Harappan culture have been advanced. Among them are foreign invasion, floods, desiccation of the land and the degeneration of the culture itself. None of these, however, has yet become definite enough to be accepted to the exclusion of others.

About a hundred sites of the Harappan or the Indus Valley culture (*circa* 2500-1500 B.C.) have been found in India, but only a few have been excavated as yet. Of these, four have been extensively excavated : Lothal (Ahmedabad District, Gujarat), Kalibangan (Ganganagar District, Rajasthan), Rupar (Punjab), and Alamgirpur (Meerut District, U.P.). The latter two sites have, in fact, provided with a continuous sequence of cultures ranging from the Harappan times to the late medieval period. These sites have thrown new light on the Harappan culture itself and have added a great deal to our knowledge and understanding of that civilization.

Kalibangan has yielded remains of the pre-Harappan culture which may be generically connected with the Harappans. Among the more important finds here were the well laid-out houses and two inscribed potsherds. The other features revealed here were the defences and the cemeteries of the Harappan times. The fire-altars discovered here throw new light on the religious practices of the Harappans.

Lothal is not the name of the village, but it is the mound of

the dead near the village of Saragwala in the District of Ahmedabad. It is the most important Harappan site in Gujarat. The finds from Lothal include a high mud-brick platform, houses of burnt bricks with bathrooms and drains, and seals and sealings. Of yet greater significance are the seals of the Persian Gulf origin and the dockyard dug up here, for they bear testimony to the ancient maritime activities of the Harappans. The seals and sealings of Lothal bear Indus script and animal figures. A cemetery was discovered in the Lothal mound. In one burial, two bodies were found placed close to each other. They were extended burials with head to the north.

Two Harappan sites, one at Surkotda (District Kutch) and the other at Pal (District Rajkot), both in Gujarat, have recently been discovered. They are likely to throw more light on the movements of the Harappans.

The period between the end of the Harappan culture (*circa* 1500 B.C.) and the beginning of the early historical times in about the fifth century B.C. was regarded as the 'Dark Age' of India's past. Extensive work has been done in recent years to bridge this gap in Indian archaeology and history by bringing to light the existence of chalcolithic cultures. These cultures are characterised by the use of neoliths and microliths, copper objects and red pottery with paintings in black. They can be broadly classified into the Banas or Ahar Chalcolithic Culture, the Central Indian Chalcolithic Culture and the Deccan Chalcolithic Culture. This classification has primarily been made owing to the regional peculiarities in the Chalcolithic Cultures. The Cultures were widespread in the second half of the second millennium and the first half of the first millennium B.C.

The important sites representing these cultures are Ahar and Gilund (District Udaipur, Rajasthan), Eran (District Sagar, Madhya Pradesh) and Navdatoli (District Nimar West, Madhya Pradesh), Nevasa (District Ahmednagar, Maharashtra), Chandoli (District Poona, Maharashtra), Brahmagiri (District Chitradurg, Mysore) and Maski (District Raichur, Mysore).

Another significant addition to the knowledge of Indian archaeology has been the discovery and recognition for the first time of a distinctive ceramic industry known as the Painted

Grey Ware which has been found at the various sites of ancient Aryavarta. The Painted Grey Ware Culture is datable between *circa* 1100-800 B.C. The Culture has been associated with the Aryans. The interesting point about the distribution of this characteristic ceramic industry is that it has been found in most of the sites which are mentioned in the *Mahabharata*. Among the notable sites yielding this Ware are Hastinapura (District Meerut, U.P.), Sravasti (District Bahraich, U.P.) and Rupar (Punjab). The Ware has also been found at many places in Rajasthan.

The discoveries described above have gone a long way in enhancing our knowledge of Indian art, architecture, iconography and religion.

VII. THE HISTORICAL PERIOD

The history of the period between the Harappa culture and the early historical period, i.e., 300 B.C., has been hazy. From the literary evidence we know that this was the period of the *Vedas*, the *Ramayana* and the *Mahabharata*. However, as has been shown in the previous chapter, the systematic efforts of Indian archaeologists have contributed a great deal in throwing light on this dark age of India's past.

On the basis of our present knowledge, historical archaeology in India had its beginnings in the third century B.C. Some relics, two or three centuries prior to this date, have also been unearthed. At Taxila and Rajgir, a large number of historical sites have been explored and excavated and many historical data discovered which have a bearing on the history of India since the third century B.C. The explored sites include in the North-Western region, Taxila and other Gandhara sites; in North India, Rajgir, Nalanda, Pataliputra, Lauriya-Nandangarh (Bihar), Sarnath, Ahichchhatra Saheth-Maheth (U.P.), Kasia (District Deoria, U.P.) or Kusinagara where Buddha died, Mathura, Rajghat (near Varanasi), Kausambi (District Allahabad, U.P.); in Eastern India, Bangarh (West Bengal), Sisupalgarh and Ratnagiri (Orissa); in South India, Nagarjunakonda, Yelleswaram, Amaravati and Kondapur (Andhra Pradesh), Arikamedu (near Pondicherry), Brahmagiri and Maski (Mysore), Tirukkambuliyur and Kaveripattinam (Madras); Devnimori, Amreli, Baroda and Timbarva (Gujarat); etc. The finds unearthed at these sites include ruins of cities, temples, monasteries, images of Buddha, stupas, sculptures, ornaments, coins and various other things which help in the reconstruction of social, cultural, political and economic history of the country in different periods.

The ruins of Taxila comprise three successive city sites, Bhir Mound, Sirkap and Sirsukh. The first two sites have been excavated and the finds include Buddhist stupas and monasteries, gold and silver ornaments, coins, etc. From the excavated material the story of the Bhir Mound was reconstructed. It

appears that the city had started in about the fifth century B.C. and continued to exist for about three centuries. It was an unplanned town with houses made of rubble masonry. Rough masonry pillars inside the rooms held the roof. Soak wells were in plenty. Gems, jewelleries and coins, including some of Alexander the Great, were also found at this site.

The neighbouring city at Sirkap was a well-laid city founded in the second century B.C. It was under the Indo-Greek rulers. It had a mud rampart surrounding it and a long central street with residential houses on two sides. In the first century B.C., the city extended towards the south to include the high ground on the Hathial spur. At this site were found a large number of coins of different variety which settled a knotty point, much disputed before among the historians, whether Kadphises group of Kushan kings or the Kanishka group came earlier.

Near the north gate of Sirkap, a temple believed to be Zoroastrian was excavated and found to conform in plan to a Greek peripteral temple. Taxila and other Gandhara regions are rich in Buddhist remains of the early centuries before Christ. Taxila had a cosmopolitan population with far-flung commercial relations.

In the North, a large number of sites were excavated. The remains unearthed sometimes supplement the recorded history existing in the form of travel literature and give it a somewhat final and complete form. The selection of sites, as we have already stated, was facilitated by such literature as Fa-hien and Hiuen Tsang's Travels. Rajgir, Pataliputra, Nalanda and such sites were thus excavated.

The ruins of Rajgir which was the seat of Bimbisara and Ajatasatru cover an extensive valley. The ancient defences and the citadel which must have been as old as Bimbisara have been encountered here. With the help of the Chinese pilgrims mentioned before, it was possible to identify many Buddhist monuments inside and outside the valley. Indeed, Rajgir site is very rich in archaeological material and when excavation is complete, it will surely lead to the discovery of many interesting facts.

After the death of Ajatasatru, the capital was moved to Pataliputra, i.e., modern Patna which during the time of the Mauryas became the Imperial capital. We get a description of this city in Megasthenes' account. It is difficult to excavate some of the sites here as the ruins have been found to lie largely in the low land with a high subsoil water-table. Two sites, however, were partially dug up at different times and interesting remains unearthed. In one of the sites, ruined brick walls of the late Gupta period and numerous heaps of stone fragments with a polish reminiscent of the Mauryas at a distance of 15 feet from one another, centre to centre, were found. From other remains, it was inferred that these were the ruins of a Mauryan hall, standing on eighty or more pillars. The charcoal and ashes occurring in these places indicated that the superstructure of the building was made of wood and subsequently destroyed by fire.

The ruins of Sarnath (near Varanasi), one of the four holy places of Buddhism, were explored and a large number of stupas, temples, and monasteries were discovered. Besides the stupas and the edifices including a brick temple probably representing the one seen by Hiuen Tsang (7th century A.D.), a remarkable monument was also dug up. It is the Dhamekh Stupa, consisting of a solid cylindrical structure, partly brick and partly stone, 93 feet in diameter at the base and 143 feet high. There are delicate floral designs in the lower part of the stone portion of the stupa. A good number of stone sculptures were also discovered here including the famous lion capital which once adorned the Asoka pillar now standing on the site in a fragmentary condition.

The ruins of Nalanda were also excavated and the brick temples and monasteries were dug up and their architecture studied. In one of the monasteries, a copper plate inscription was found which recorded the endowment of five villages by king Devapala for its upkeep. Besides stupas, temples, etc., a large number of stone and bronze images, terracotta seals and plaques were also found. Some royal seals, very important for the reconstruction of the line of the Guptas, were also found inside a monastery unearthed here.

At Tamluk and Chandraketugarh (West Bengal), the Rouletted Wares have been unearthed. The Ware is regarded as the

product of the Indo-Roman contact around the beginning of the Christian era.

At Jagatgram (U.P.), the remains of inscribed burnt-brick altars, associated with the performance of horse-sacrifices by a king, Silavarman, in the third century A.D. have been found.

Several important sites excavated with fruitful results include Sisupalgarh in Orissa and Ahichchhatra in U.P. The main excavation at Ahichchhatra "revealed a cross-section of the life of the city from its beginning in the 3rd century B.C. to its end in the 10th-11th century A.D."

Some sites in Rajasthan were also excavated. In the South, a number of sites have been explored of which those at Nagarjunakonda and Arikamedu are most important.

The Nagarjunakonda site was first excavated in 1927. With the construction of the Nagarjunasagar Dam across the river Krishna in Andhra Pradesh, this ancient site was to go under water. In view of this, excavation here was resumed in 1954. The work, now complete, has yielded remains which are vast and varied and which, in fact, range from the Old Stone Age down to the medieval times. The finds include palaeolithic and microlithic tools, neolithic remains, remains of regular settlements and burials, stupas, *chaityas, viharas* and temples of the Buddhist faith, Hindu temples and fortifications. A bathing-ghat on the Krishna and an amphitheatre have also been discovered here. The amphitheatre is the only example of the kind found so far in the country. The remains reveal that the valley has been under occupation right from the palaeolithic times.

Thanks to the Survey, some of the more important remains have been transplanted on the Nagarjuna Hillock which would jut out of the swirling waters of the Dam.

A few selected places on the Arikamedu site were dug up with very interesting results. More important than the buildings were the small finds like glass bowls, one of them 'pillared', a common type in the Roman world, Roman pottery lamp, red-glazed pottery, etc. All these showed contacts with the Roman world and indicated the first century A.D. as the date of the settlement which was an important mart and business centre on the Coromandel Coast. As has been pointed out, "apart from

being the first identified Indo-Roman trading-station, Arikamedu is important for providing data, in the form of datable Roman objects, for dating the mass of Indian objects found in association with the former". Knowledge acquired here could be successfully applied to ascertain the date of other sites, notably of Brahmagiri (Mysore) and Sisupalgarh (Orissa).

VIII. CONSERVATION WORK AND THE MUSEUMS

The archaeological and architectural wealth of India is immense. It is the business of the Archaeological Survey of India to preserve this from destruction. Growth of jungles, the destructive action of salt, of wind, rain and water, of earthquakes and of vandals; the habit of quarrying for bricks and stones,—these are some of the causes which spoil and even destroy monuments in India. An extreme instance of the lack of a sense of values is furnished by a Government-sponsored proposal in 1828 "to demolish the Taj Mahal for the value of its marbles" —a proposal "seriously considered for the next seven years"!

As time passed, it began to be realised, however, that the preservation of these monuments was a State responsibility. In course of time, a Curator of Ancient Monuments was appointed and action was taken to repair and preserve the monuments. We have already seen how archaeology got a set-back in 1885 and how after Lord Curzon took over the reins of government, it came into its own at last. The Ancient Monuments Preservation Act was passed in 1904 and ever since, the Survey has been preserving the monuments which include ruined stupas, temples, mosques, churches, tombs, forts, palaces, bathing-ghats, rock-cut caves, excavated remains, paintings, etc.

An idea of the variety of conservation work needed and done can be gathered from the following description :

"In ruined standing monuments the chief tasks have been the clearance of their plans by rescuing them from heaps of fallen debris; the preservation of the core of masonry or brick-work exposed by the facing having fallen off; filling up and grouting cracks; underpinning worn-out bases of walls; re-setting perilously out-of-plumb walls; making ruined wall-tops watertight; pointing open joints; eradication of vegetation, etc. In Muslim monuments additional complications are often introduced by the presence of damaged arches and domes. In the rock-cut caves and temples of West and South India the gradual

wearing out of the rock has been the chief problem. While chemical preservation is called for in some cases, in the majority of them the percolation of water from one or more sources, which may be at a considerable distance from the monument, is generally hard to detect and check. In excavated remains with buildings of more than one period the problems are necessarily different : the preservation is concerned with the overhanging later structures, often resting on nothing more than loose earth or debris, and sometimes with the drainage of rain-water from the lower levels much deeper than the adjoining surface. In the excavated areas of Mohen-jo-Daro and Harappa salt starts disintegrating the brickwork immediately after it has been exposed. The use of over-burnt bricks was found to be nothing more than a palliative and the practice has now been stopped."

Besides these, there are the annual repairs like repairing cracked walls, removing jungles, repairing and replacing the broken and missing components, etc.

Of the many kinds of conservation work hitherto undertaken by the Survey, a few large-scale programmes of work have been indicated here.

One of the early undertakings related to the group of monuments at Sanchi in Madhya Pradesh. Time and former explorers had damaged them by leaving wide breaches in them. The work of conservation continued for seven years. The whole of the south-western quadrant of the great Stupa was dismantled and reconstructed. It was about to collapse; had it done so, the south and west gates would have collapsed too. The dome, the balustrades, and the crowning umbrellas of one of the Stupas were restored, the site levelled and turfed.

The ruins at Takht-i-bahi; the excavated remains at Taxila and around; Kasia, Saheth-Maheth and Nalanda were also attended to and saved from destruction. The base of the Dhamekh Stupa and some structures in the Main Shrine at Sarnath (U.P.) were repaired.

Repair work was done in the Mundesvari Temple (Stone) at Chainpur (Bihar), brick temples at Bahua and Bhitargaon (U.P.), the temples in the Almora hills, the shrine at Tigawa

(District Jabalpur), the Lakshmana Temple at Sirpur (Madhya Pradesh), the Mahadevi Temple at Pali (District Sagar,) the famous Khajuraho temples (Madhya Pradesh) and the Jain temple at Mount Abu were attended to. The temples at Aihole and Pattadakal (Mysore) also received attention. Tomb of Zainu'l Abidin's mother, Srinagar, and Mughal Arcade, Verinag, both in Jammu and Kashmir, were taken care of.

The Delhi monuments were also conserved. Apart from normal repairs, reconstruction work such as the excavation of buried causeways, water channels and the fountain in the Red Fort was undertaken and completed. The old levels of buildings at the Qutb were restored and other historical monuments like Khirki Masjid, Mothki Masjid, Tughalakabad were also attended to.

Monuments at Agra and Fatehpur Sikri, the Fort, Itimadu'd Daulah, the Taj, the tomb of Salim Chisti, Buland Darwaza have also been repaired and preserved.

The fort and tomb of Sher Shah at Rohtas and Sasaram respectively, both in Bihar, were repaired and overhauled and saved from decay and ruin. The mediaeval forts at Burhanpur, Daulatabad, Vijaynagar, Kalinjar and Mandu were also taken care of and preserved.

The conservation work in most of these presented problems. Thus the disintegration of the rock brought about by salts in the atmosphere and the leaking of water into the caves posed a problem for the rock-cut temples at Elephanta. First, a Committee of experts went into it and then elaborate conservation work carried out. Among other things, earth and vegetation were removed from the top of the caves, the cracks and interstices filled in with cement and mortar and the whole rock surface was covered with a coating of gunite; steps were taken to prevent rain water from percolating into the main cave; holes were bored in the southern fringe of the rock-roof and filled up with cement; in one cave, stone columns were constructed to hold the ceiling. Thus no pains were spared to save it from destruction. Masonry and other work was undertaken to save the Shore Temple at Mahabalipuram (Madras) from the devastating effect of direct action of water. The magnificent Sun Temple at Konarak

(Orissa) has received persistent attention in recent times. Large-scale chemical treatment was necessitated in this case. The Gol Gumbad at Bijapur (Mysore) also received attention, its dome had to be treated both from inside and outside to keep its accoustic properties intact.

The rock-cut caves at Ajanta, Ellora, Pitalkhora, Bhaja, Elephanta and Karla (Maharashtra) were attended to. Careful attention was paid to the monuments in Chittorgarh (Rajasthan).

The group of monuments comprising Sé Cathedral, Basilica of Bom Jesus and Church Assisi of St. Francis in Goa Velha were repaired.

The Sun Temple at Modhera, the Hira Gate at Dabhoi, the Sahasraling Tank at Patan and the Jami Masjid at Champaner, all in Gujarat, were attended to.

In short, repair, reconstruction and preservation of these valuable monuments have been a regular feature of the Survey.

India has, at present, about 200 museums several of which house archaeological exhibits. The first modern museum in this country was founded by the Asiatic Society of Bengal in 1814 which grew into what is the Indian Museum today in Calcutta. A museum at Madras followed. The example of Calcutta and Madras led to the establishment of more than 25 museums between 1850 and 1900. Of these, the museums at Lahore, Lucknow, Mathura, Nagpur, Karachi, Udaipur, Rajkot, Bombay, Baroda, Faizabad, Bhavnagar, Bangalore, Trichur and Trivandrum were noted for their archaeological or historical collections. Since the days of Curzon, archaeological museums began to grow in number and sprang in various parts of the country. The policy was to establish museums at important sites of excavation. Accordingly, the first site museum was set up at Sarnath near Varanasi (U.P.). Following excavations at other important sites, museums came to be established at Harappa, Mohen-jo-Daro, Taxila (all the three now in Pakistan); at Nalanda (Bihar), Nagarjunakonda, Amaravati, Kondapur (Andhra Pradesh); and at Sanchi (Madhya Pradesh).

Site museums have also been founded at Khajuraho (Madhya Pradesh), Kiching (Orissa); at Hampi, Bijapur, Srirangapattana and Halebid (Mysore); at Alampur (Andhra Pradesh)

and at Bodh Gaya and Vaiśali (Bihar). Archaeological museums are being set up at Ratnagiri (Orissa), Rupar (Punjab) and Lothal (Gujarat). Museums in India with good archaeological exhibits now include those at Delhi, Madras, Bombay, Baroda, Bijapur, Baripada, Kiching, Cuttack, Gauhati, Gwalior, Jaipur, Hyderabad, Jodhpur, Khajuraho, Mysore, Patna, Poona, Sanchi, Udaipur, Alampur, Vaisali, Hampi, Halebid, Bodh Gaya, Srirangapattana, and Panaji (Goa).

Much damage has been done to temples and buildings of the past, sculptures have been disfigured, carved architecture dismembered and scattered. These have found their way to the museums which were and are being enriched by valuable finds obtained after the excavation of historical sites. The National Museum, New Delhi, houses the precious archaeological collection made by Aurel Stein during his expeditions to Central Asia.

Most of the site museums are under the management of the Archaeological Survey which has a Museums Branch. The museums are precious repositories of India's cultural heritage, rich and varied. The exhibits are systematically studied by students of history and are a source of education, culture and entertainment.

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